(No Model.) 2 Sheets—Sheet 1.

J. TETLOW.

MACHINE FOR FLANGING METAL.

No. 387,665. Patented Aug. 14, 1888.

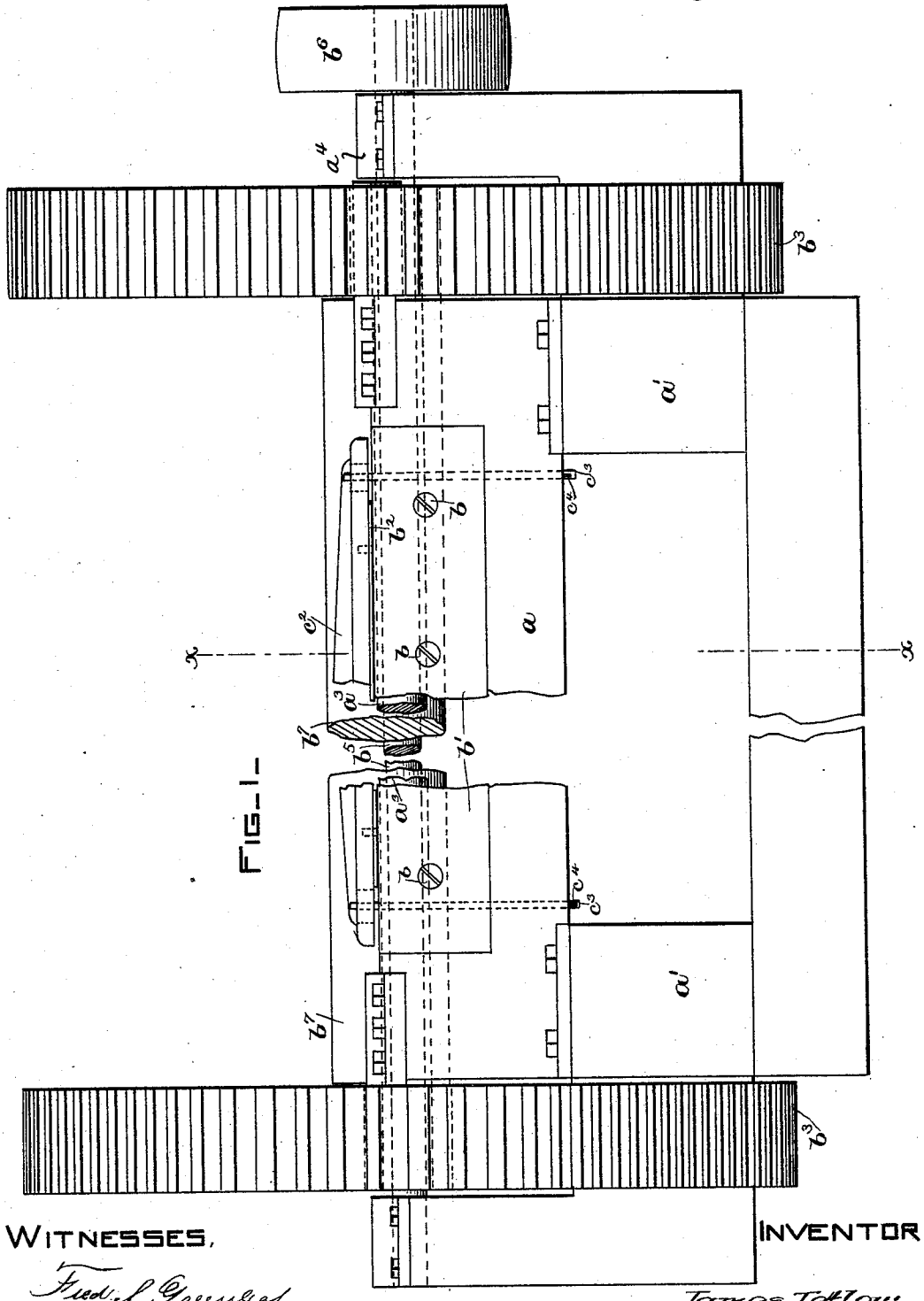


FIG. 1.

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(No Model.) 2 Sheets—Sheet 2.

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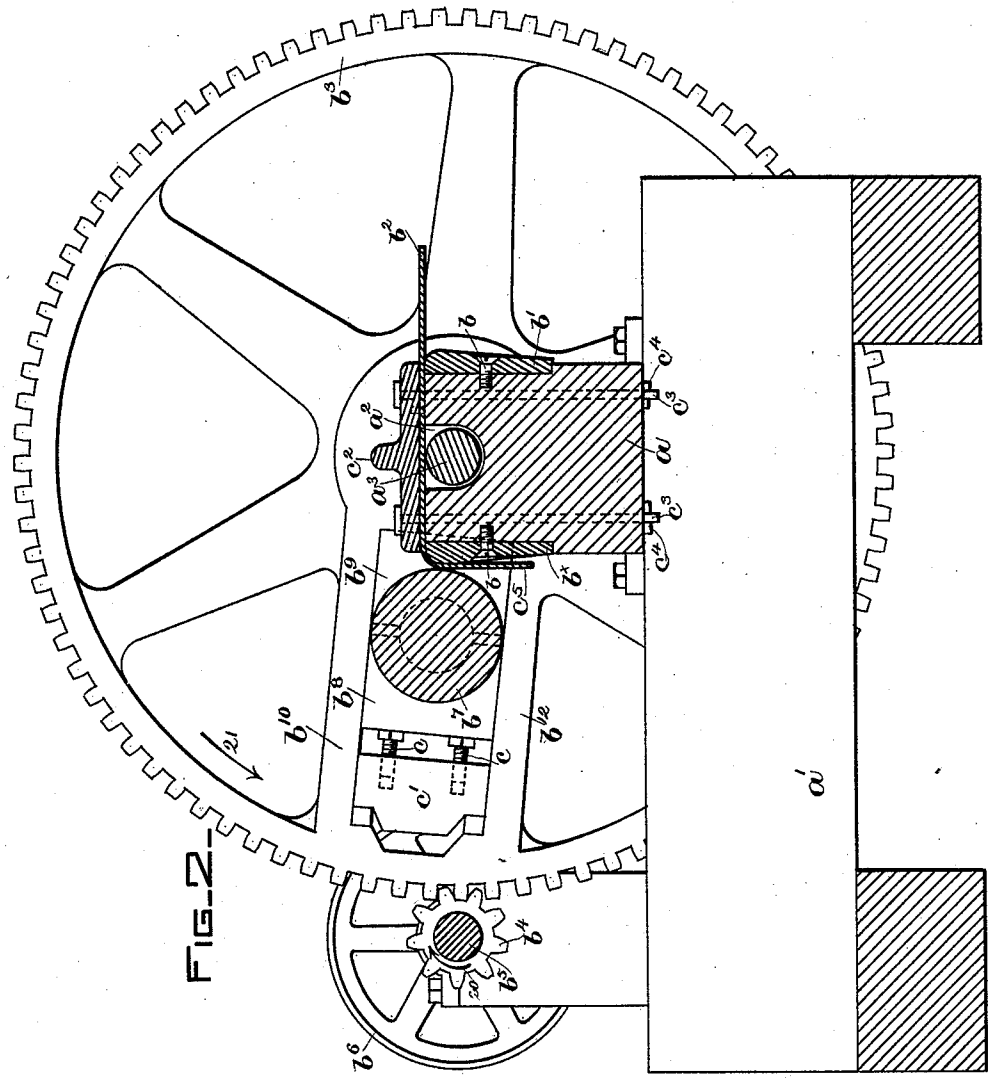


FIG. 2.

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UNITED STATES PATENT OFFICE.

JAMES TETLOW, OF BOSTON, MASSACHUSETTS.

MACHINE FOR FLANGING METAL.

SPECIFICATION forming part of Letters Patent No. 387,665, dated August 14, 1888.

Application filed December 27, 1887. Serial No. 259,031. (No model.)

To all whom it may concern:

Be it known that I, JAMES TETLOW, of Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Mechanism for Flanging Metal, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to machines for bending or flanging metal, it being more particularly designed for bending or shaping the metallic transom and bolster employed in the construction of car-trucks, substantially such as described in United States Patents, Nos. 361,845 and 361,846, dated April 26, 1887.

In the construction of car-trucks, such as shown and described in the patents referred to, angle-irons are employed to strengthen the transoms and bolsters, they being secured to the inner side thereof by rivets or bolts. The angle-irons referred to are cast in a suitable mold, and are preferably of uniform size and are provided at suitable distances apart with bolt or rivet holes. It is especially desirous that the transom and bolster should each be bent so that the bolt-holes, preferably previously made in the sheet of metal from which the said transom or bolster is bent, should coincide with the holes in the angle-irons when the said bolster or transom is bent and has fitted in it the said angle-irons.

It is the object of this invention to provide a machine by which a sheet of metal may be bent uniformly to form a transom or bolster adapted to have the angle-irons applied or fitted to it without hammering or otherwise operating upon the said transom or bolster.

My invention consists, essentially, in a machine for bending or flanging metal sheets, of a bed to support the metal sheet to be flanged, "formers" detachably connected to the sides of the said bed, and a clamp to secure the metal sheet on top of the said bed, with its sides projecting beyond the bed, combined with a roller, and mechanism to move the said roller over the said bed, and clamp to bend the sides of the sheet over the said formers to form flanges to the portion of the metal sheet held between the clamp and bed, substantially as will be described.

Other features of my invention will be pointed out in the claims at the end of this specification.

Figure 1 is a side elevation of a machine embodying my invention, partially broken out to save space in the drawings; and Fig. 2 a transverse section of Fig. 1 on line $x\,x$.

The bed a, of iron or other suitable material, resting upon and secured to a suitable foundation or support, a', is provided, as shown, with a longitudinal groove or countersink, a^2, in which is located a shaft, a^3, having bearings in pillow-blocks a^4.

The bed a, as herein shown, has secured to its opposite sides, by screws b, formers $b^\times\,b'$, over which the metal sheet b^2, of steel or other metal, is bent, as will be described.

The shaft a^3 is provided, as shown, at its opposite ends with gear-wheel b^3, driven by pinions b^4, on a shaft, b^5, provided with the belt-pulley b^6, by which rotation is imparted to the said shaft and gears b^3. The sheet b^2 of metal is bent over the formers $b^\times\,b'$ by a roller, b^7, having bearings in blocks or housings $b^8\,b^9$, supported in guides $b^{10}\,b^{12}$, forming arms for the gear b^3. The housings $b^8\,b^9$ are made radially adjustable, as herein shown, by means of screws c extended into threaded sockets in a block, c'.

In operation, a flat sheet, b^2, of metal preferably, has first punched in it the bolt or rivet holes, and it is then placed upon the bed a and held firmly thereto by a clamp, c^2, of substantially the same width as the said bed, the said clamp being secured, as herein shown, by bolts or rods c^3 extended through suitable holes in the said clamp and bed, the said bolts or rods being secured, as shown, by the key c^4. The sheet b^2 having been secured to the bed, as described, the shaft is preferably first rotated in direction indicated by arrow 20 to produce an opposite rotation of the gears b^3, as indicated by arrow 21, thus causing the roller b^7 to act upon and bend one side of the sheet b^2 over one former, as $b^\times$, to form one side or flange c^5 of the transom or bolster. After the side or flange c^5 has been bent the shaft b^5 is rotated in a reverse direction, in any suitable or well-known manner, so as to rotate the gear b^3 in a direction opposite to that indicated by arrow 21, thus causing the roller b^7 to pass over the clamp c^2 and bend the other side of the plate b over the former b', thus completing

the transom or bolster. The keys c^4 may then be withdrawn and the rods or c^3 bolts and clamps c^2 removed to enable the transom or bolster to be removed.

The formers $b^\times$ b' will preferably be made inclined or tapering on their outer faces to enable the sides or flanges of the bolster or transom to be bent in far enough to compensate for the elasticity of the steel.

In practice the bolster is made smaller than the transom, and when one set of formers has been used to shape or bend bolsters—as, for instance, those shown in the drawings—the said formers may be removed and a new and larger set substituted therefor to shape or bend the transoms.

When a larger set of formers is secured to the bed a, the roller b^7 will be moved radially from the said bed by adjusting the screws c.

I have herein described my improved machine as particularly adapted for bending transoms and bolsters; but it is evident that the said machine may be used to bend metal for other purposes and at other angles than a right angle. Furthermore, my improved machine may be used for bending sheets or copper and other metals as well as steel; but to bend the metal, if of steel, so as to leave a right-angled flange the beveled or inclined formers are essential.

I claim—

1. In a machine for bending or flanging metal sheets, a bed, a, to support the metal sheet to be flanged, formers detachably connected to the sides of the said bed, and a clamp to secure the metal sheet on top of the said bed, with its sides projecting beyond the bed, combined with a roller, and mechanism constructed, substantially as described, to move the said roller over the said bed, and clamp to bend the sides of the sheet over the said formers to form flanges to the portion of the metal sheet held between the clamp and bed, substantially as described.

2. The bed a, having a groove, a^2, a shaft, a^3, having gears b^3, combined with a shaft, b^5, having pinions in mesh with said gears, and with a roller or shaft, b^7, carried by the gears b^3, substantially as described.

3. In a machine for bending or flanging metal sheets, the combination, with a bed and formers secured on opposite sides thereof, of a clamp to secure the metal sheet on the said bed, a roller, and mechanism constructed, substantially as described, to move the roller over the said bed, and clamp to bend the sides of the sheet over the said formers, and adjustable bearings for the said roller to permit metal sheets of varying thicknesses to be bent, substantially as described, and for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES TETLOW.

Witnesses:
JAS. H. CHURCHILL,
J. C. SEARS.